

CLAIMS

1. A Gateway Home Location Register (GHLR), comprising:
 - a signaling transceiving module, connected to a subscriber information storage network element in the home network and a network element capable of fetching subscriber routing information in the visited network, and designed to receive a signaling request and return an acknowledgement, so as to accomplish information exchange between the network element and the GHLR;
 - a security rule configuration module, designed to store intercommunication security rules and relevant data of the GHLR system;
 - a routing information security analysis module, designed to receive and store signaling information sent from the signaling transceiving module, to identify and analyze the signaling request according to security rules generated by the security rule configuration module, and to return the acknowledgement to a destination network element via the signaling transceiving module.
2. The GHLR according to claim 1, wherein said intercommunication security rules comprise security rules configured by an operator and security rules selected by subscription of the subscriber.
3. The GHLR according to claim 2, wherein said security rule configuration module comprises:
 - a security rule storage module, designed to store the logics of intercommunication security rules of the GHLR system;
 - a system intercommunication security rule storage module, designed to store the intercommunication security rule data of the GHLR system;
 - a subscriber subscription intercommunication data storage module, designed to store subscriber subscription intercommunication data;
 - a subscriber subscription data conversion module, designed to map subscriber data to the system intercommunication security rule data and determining whether the subscriber subscription data is valid according to the system intercommunication security rule data.
4. The GHLR according to claim 3, wherein said GHLR also comprises an input means connected with the security rule configuration data storage module and the subscriber intercommunication subscription data storage module, so as to accomplish data input and update.

5. The GHLR according to claim 2, wherein said security rules selected by subscription of the subscriber comprise at least one of serving area restriction, trans-area service restriction and intercommunication information content restriction, or combinations of them.

6. The GHLR according to claim 2, wherein said security rules configured by the operator comprise at least one of whether the called subscriber is a subscription one, whether the calling network element is a legal network element, whether the signaling element is valid, whether the value of the signaling element is valid and whether the service area is valid, or combinations of them.

7. The GHLR according to claim 1, wherein said network element capable of fetching subscriber information is a Mobile-services Switching Center (MSC).

8. The GHLR according to claim 1, wherein said network element capable of fetching subscriber information is a Service Control Point (SCP).

9. The GHLR according to claim 1, wherein the interface signaling protocol between the signaling transceiving module and the subscriber information storage network element either may be the same as or may be different from that between the signaling transceiving module and the network element capable of fetching subscriber information.

10. A method of exchanging roaming subscriber routing information, comprising the following steps:

a. a network element capable of fetching subscriber routing information in the visited network sending a routing information request signaling to the GHLR in the home network;

b. the GHLR receiving the information request and determining the request according to the security rules of the GHLR; if the request is accordant to the intercommunication security rules of the GHLR, going to step c; otherwise the GHLR rejecting the information request;

c. the GHLR interacting with the HLR in the home network to obtain routing information;

d. the GHLR determining the received routing information according to the intercommunication security rules; if the routing information is accordant to the intercommunication security rules, going to step

e; otherwise the GHLR rejecting the request;

e. sending the routing information to the network element that sending the request in the visited network.

11. The method of exchanging roaming subscriber routing information according to claim 10, wherein said step b further comprises:

b11. the signaling transceiving module of the GHLR in the home network, after receiving the routing information request signaling from the visited network, invoking the system intercommunication security rule data storage module configured by the operator, and determining whether the request is accordant to the security rules configured by the operator; if so, going to step b12; otherwise rejecting the request;

b12. invoking the subscriber intercommunication subscription data storage module configured by the subscriber, and determining whether the request is accordant to the security rules configured by the subscriber; if so, going to step c; otherwise rejecting the request.

12. The method of exchanging roaming subscriber routing information according to claim 10, wherein said step b further comprises:

b21. the signaling transceiving module of the GHLR in the home network, after receiving the routing information request signaling from the visited network, invoking the subscriber intercommunication subscription data storage module configured by the subscriber, and determining whether the request is accordant to the security rules configured by the subscriber; if so, going to step b22; otherwise rejecting the request;

b22. invoking the system intercommunication security rule data storage module configured by the operator, and determining whether the request is accordant to the security rules configured by the operator; if so, going to step c; otherwise rejecting the request.